

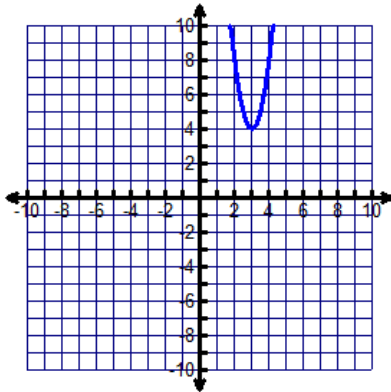
4.8

Average Rate of Change

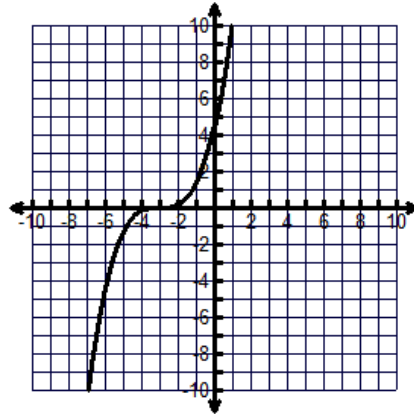
Name _____ Date _____ Period _____

Find the average rate of change between given intervals. Do not round if possible.

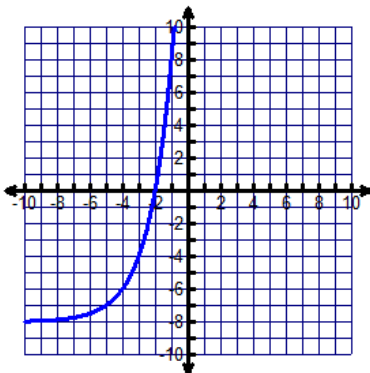
1. $[2, 4]$



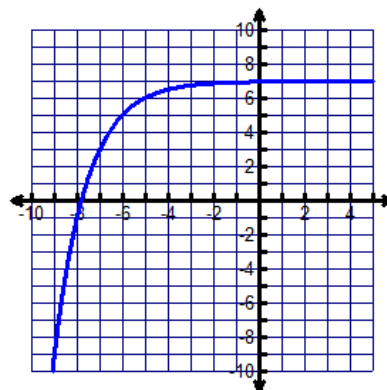
2. $[-6, 0]$



3. $[-5, -2]$



4. $[-6, -5]$



Find the average rate of change for each function on the specified interval. Round answer to the nearest ten thousandths if necessary.

5. $f(x) = 4x^2 + 12x + 9$ on $[-3, 0]$

6. $f(x) = \frac{x-7}{x^2+14x+40}$ on $[-9, -5]$

7. $f(x) = \frac{x^2+x-72}{x^2+5x}$ on $[-4, -1]$

8. $f(x) = \sqrt{x-7}$ on $[7, 11]$

9. $f(x) = \sqrt[3]{x} - 6$ on $[-1, 1]$

10. $f(x) = -\sqrt[3]{x+6} + 2$ on $[-5, 2]$

11. $f(x) = x^4 - 8x^3 + 16x^2$ on $[-1, 3]$

12. $f(x) = \log(x-3) - 4$ on $[4, 13]$

13. $f(x) = \ln(-x+5) - 5$ on $[-7, 1]$

14. $f(x) = -2\cos x - 3$ on $[0, \pi]$

15. $f(x) = 4^{x-1} - 5$ on $[-1, 3]$

16. $f(x) = \frac{1}{2} \left(\frac{1}{4} \right)^x + 2$ on $[-5, -1]$

Find the average rate of change on the specified interval and interpret its meaning. Round answer to the nearest ten thousandths.

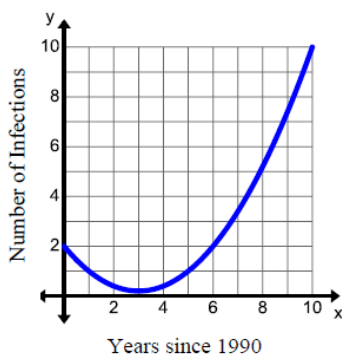
17. The table shows the average annual consumption of cheese per person in the U.S. for selected years. (Source: U.S. Department of Agriculture) What is the average consumption between 1940 and 1995?

Year	Pounds Consumed
1910	4
1940	5
1970	8
1975	10
1995	25
2001	30

18. The table below shows the amount of carbon dioxide in the Earth's atmosphere for selected years.
(Source: The Weather Channel) Find the average rate of change from 1968 to 2003.

Year	CO ₂ in Atmosphere (ppm)
1968	324.14
1983	343.91
1998	367.68
2003	376.68
2008	385.60

19. The graph below displays the number of infections per month for every 1,000 computers since 1990. Find the average rate of change from 1991 to 1998. Round to the nearest ten thousandths.



20. The graph below shows the percentage of on time flights per year since 1998. Find the average rate of change from 1999 to 2003. Round to the nearest ten thousandths.

